

# **Walchand College of Engineering, Sangli**

(An Autonomous Institute)



## **Curriculum (Structure)**

**for**

**B.Tech. Computer Science and Engineering**

**Academic Year 2017-2018**



**Walchand College of Engineering, Sangli**

(An Autonomous Institute)

Teaching and Evaluation Scheme effective from 2016-17

**Second Year B.Tech. Program in Computer Science & Engineering**

Semester I

Course Code	Course	Teaching Scheme				Evaluation Scheme			
		L	T	P	Credits	Component	Marks		
							Max.	Min. for Passing	
3CS201	Discrete Mathematics	3	1	0	4	ISE-1	10	20	40
						MSE	30		
						ISE-2	10		
						ESE	50		
3CS202	Data Structures	3	0	0	3	ISE-1	10	20	40
						MSE	30		
						ISE-2	10		
						ESE	50		
3CS203	Data Communication & Networking	3	0	0	3	ISE-1	10	20	40
						MSE	30		
						ISE-2	10		
						ESE	50		
3CS204	Software Engineering	3	1	0	4	ISE-1	10	20	40
						MSE	30		
						ISE-2	10		
						ESE	50		
3CS205	Processor Architecture	3	0	0	3	ISE-1	10	20	40
						MSE	30		
						ISE-2	10		
						ESE	50		
3HS 201	Environmental Science	2	1	0	3	ISE-1	10	20	40
						MSE	30		
						ISE-2	10		
						ESE	50		
3CS 251	Data Structures Lab	0	0	2	1	ISE	50	20	
						ESE (POE)	50	20	
3CS 252	Processor Architecture Lab	0	0	2	1	ISE	50	20	
						ESE (POE)	50	20	
3CS 253	Programming Lab-I	2	0	2	3	ISE	50	20	
						ESE (POE)	50	20	
Total		19	3	6	25	<b>Total Credits: 25</b>			
						<b>Total Hours: 28</b>			



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**Second Year B.Tech. Program in Computer Science & Engineering**

Semester II

Course Code	Course	Teaching Scheme				Evaluation Scheme			
		L	T	P	Credits	Component	Theory Marks		
							Max.	Min.	
3CS 221	Theory of Computation	3	1	0	4	ISE-1	10	20	40
						MSE	30		
						ISE-2	10		
						ESE	50		
3CS 222	Computer Network	3	0	0	3	ISE-1	10	20	40
						MSE	30		
						ISE-2	10		
						ESE	50		
3CS 223	Operating System	3	1	0	4	ISE-1	10	20	40
						MSE	30		
						ISE-2	10		
						ESE	50		
3CS 224	Database Engineering	3	0	0	3	ISE-1	10	20	40
						MSE	30		
						ISE-2	10		
						ESE	50		
3CS 225	Statistics and Fuzzy System	3	1	0	4	ISE-1	10	20	40
						MSE	30		
						ISE-2	10		
						ESE	50		
3CS 271	Computer Network Lab	0	0	2	1	ISE	50	20	
						ESE (POE)	50	20	
3CS 272	Database Engineering Lab	0	0	2	1	ISE	50	20	
						ESE (POE)	50	20	
3CS 273	Programming Lab. -II	2	0	2	3	ISE	50	20	
						ESE (POE)	50	20	
Total		17	3	6	23	<b>Total Credits: 23</b>			
						<b>Total Hours: 26</b>			



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Course Code	Course	Teaching Scheme				Evaluation Scheme			
		L	T	P	Credits	Component	Marks		
							Max.	Min. for passing	
1OE371	Open Elective I	3	0	0	3	ISE-1	10	20	40
						MSE	30		
						ISE-2	10		
						ESE	50		
2CS3**	Professional Electives I	3	0	0	3	ISE-1	10	20	40
						MSE	30		
						ISE-2	10		
						ESE	50		
3CS 301	Computer Architecture	3	0	0	3	ISE-1	10	20	40
						MSE	30		
						ISE-2	10		
						ESE	50		
3CS 302	Principles of Compiler Design	3	1	0	4	ISE-1	10	20	40
						MSE	30		
						ISE-2	10		
						ESE	50		
3CS 303	Design and Analysis of Algorithm	3	0	0	3	ISE-1	10	20	40
						MSE	30		
						ISE-2	10		
						ESE	50		
3CS 351	Design and Analysis of Algorithm Lab	0	0	2	1	ISE	50	20	
						ESE (POE)	50	20	
3CS 352	Object Oriented Modeling and Design	2	0	2	3	ISE	50	20	
						ESE (POE)	50	20	
3CS 341	Mini-Project-I	0	0	2	1	ISE	50	20	
						ESE (POE)	50	20	
2CS3**	Professional Electives II	2	0	2	3	ISE	100	40	
<b>Total</b>		19	1	8	24	<b>Total Credits: 24</b>			
						<b>Total Hours: 28</b>			

Professional Elective I		Professional Elective II	
3CS 311	Advanced Operating System	3CS 361	Computer Graphics and Visualization
3CS 312	Advanced Data Structure	3CS 362	Advanced Programming

<b>Course Code</b>	<b>Course Name</b>	<b>Offered by Department</b>
1OE 315	Remote Sensing & GIS, GPS	Civil
1OE 329	Manufacturing Engineering	Mechanical
1OE 330	Energy Engineering	Mechanical
1OE 331	Mechanisms and Machines	Mechanical
1OE 343	Electrical Machines	Electrical
1OE 357	Electronic Systems	Electronics
1OE 358	Fundamental of Analog and Digital Communication	Electronics
1OE 371	Software Engg. & Database Essentials	CSE
1OE 385	Internet of Things	IT



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## Third Year B.Tech. Program in Computer Science & Engineering Semester II

Course Code	Course	Teaching Scheme				Evaluation Scheme			
		L	T	P	Credits	Component	Marks		
							Max.	Min. for passing	
1OE 378	Open Elective II	3	0	0	3	ISE-1	10	20	40
						MSE	30		
						ISE-2	10		
						ESE	50		
3CS 321	Distributed & Cloud Computing	3	0	0	3	ISE-1	10	20	40
						MSE	30		
						ISE-2	10		
						ESE	50		
3CS 322	Advanced Database System	3	0	0	3	ISE-1	10	20	40
						MSE	30		
						ISE-2	10		
						ESE	50		
3CS 323	Pervasive Computing	3	1	0	4	ISE-1	10	20	40
						MSE	30		
						ISE-2	10		
						ESE	50		
3CS 3**	Professional Elective III	3	0	0	3	ISE-1	10	20	40
						MSE	30		
						ISE-2	10		
						ESE	50		
3CS 3**	Professional Elective IV	3		0	3	ISE-1	10	20	40
						MSE	30		
						ISE-2	10		
						ESE	50		
3CS 371	Advanced Database System Lab	0	0	2	1	ISE	50	20	
						ESE( POE)	50	20	
3CS 372	Internet and Web Programming	2	0	2	3	ISE	50	20	
						ESE	50	20	
3CS 342	Mini-Project-II	0	0	2	1	ISE (POE)	50	20	
						ESE( POE)	50	20	
<b>Total</b>		<b>20</b>	<b>1</b>	<b>6</b>	<b>24</b>	<b>Total Credits: 24</b>			
		<b>Total Hours: 27</b>							

Professional Elective III		Professional Elective IV	
3CS 331	Digital Image Processing	3CS 334	Soft Computing
3CS 332	Intelligent Systems	3CS 335	Advanced Computer Network Technology
3CS 333	Computer Modeling and Simulation	3CS 336	Software Testing and Quality Assurance

<b>Course Code</b>	<b>Course Name</b>	<b>Offered by Department</b>
1OE 308	Machine Foundations	Civil-APM
1OE 309	Theory of Structures	Civil-APM
1OE 336	Power Plant Engineering	Mechanical
1OE 337	Fabrication Technology	Mechanical
1OE 338	Mechanical Power Transmission	Mechanical
1OE 350	Renewable Energy	Electrical
1OE 364	Embedded Programming	Electronics
1OE 365	Signal Processing and Foundation	Electronics
1OE 378	Data Analytics	CSE
1OE 392	Web Design & Applications	IT



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Teaching and Evaluation Scheme for Year 2017-18

## Final Year UG Program in Computer Science & Engineering

Semester I

Course Code	Course	Teaching Scheme				Evaluation Scheme			
		L	T	P	Credits	Component	Marks		
							Max.	Min. for passing	
1OE***	Open Elective III	3	0	0	3	ISE-1	10	20	40
						MSE	30		
						ISE-2	10		
						ESE	50		
3CS401	Information Security	3	0	0	3	ISE-1	10	20	40
						MSE	30		
						ISE-2	10		
						ESE	50		
3CS402	Data Warehousing & Data Mining	3	0	0	3	ISE-1	10	20	40
						MSE	30		
						ISE-2	10		
						ESE	50		
3IC 401	Engineering Management, and Ethics	4	0	0	4	ISE-1	10	20	40
						MSE	30		
						ISE-2	10		
						ESE	50		
3CS4**	Professional Elective V	3	1	0	4	ISE-1	10	20	40
						MSE	30		
						ISE-2	10		
						ESE	50		
3CS4**	Professional Elective VI	3	0	0	3	ISE-1	10	20	40
						MSE	30		
						ISE-2	10		
						ESE	50		
3CS451	Information Security Lab	0	0	2	1	ISE	50	20	
						ESE (POE)	50	20	
3CS452	Data Warehousing & Data Mining Lab	0	0	2	1	ISE	50	20	
						ESE (POE)	50	20	
3CS491	Project-I	0	0	2*	2	ISE	50	20	
						ESE (OE)	50	20	
<b>Total</b>		<b>18</b>	<b>1</b>	<b>6</b>	<b>24</b>	<b>Total Credits: 24 Total Hours: 25</b>			



1CS42* : Professional Elective V	
3CS 411	High Performance Computing
3CS 412	Machine learning

1CS42* : Professional Elective VI	
3CS 414	Software Defined Networking
3CS 415	Software Design and Architecture
3CS 416	RTOS and Embedded Systems

Open Elective III:		
Course Code	Course Name	Offered by Department
1OE 401	Structural Health Monitoring	APM
1OE 402	Finite Element Method	APM
1OE 416	Concrete Engineering and Technology	Civil
1OE 417	Computational Methods and Optimization Techniques	Civil
1OE 429	Automobile Engineering	Mechanical
1OE 430	Energy Modeling and Management	Mechanical
1OE 431	Aerospace Engineering	Mechanical
1OE 443	Industrial Automation	Electrical
1OE 457	Cyber Physical Systems	Electronics
1OE 471	Business Intelligence	CSE
1OE 472	Ethical Hacking and Cyber Security	CSE
1OE 485	Data Visualization and Interpretation	IT



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Teaching and Evaluation Scheme for Year 2017-18

## Final Year UG Program in Computer Science & Engineering Semester II

Course Code	Course	Teaching Scheme				Evaluation Scheme		
		L	T	P	Credits	Component	Marks	
							Max.	Min. for passing
3CS***	Professional Elective -VII	3	0	0	3	ISE-1	10	40
						MSE	30	
						ISE-2	10	
						ESE	50	20
3CS492	Project-II	0	0	8*	10	ISE	50	20
						ESE (OE)	50	20
3CS493	Techno -Socio Outreach	0	0	1	1	ISE	100	40
Total		3	0	9	14	<b>Total Credits: 14 Total Hours: 12</b>		

\*Student working hrs: 20 hrs/ week and faculty contact hrs: 8 hrs/week per batch of 8-10 students.

1CS42* : Professional Elective VII	
3CS 431	Computer forensics
3CS 432	Search Engine Design and Optimization
3CS 433	Storage Systems

The students opting for SPAI may use MOOCS for learning professional elective. The blended learning strategy such as flipped classroom can be exercised by the course teacher.